

9/28/07

To: Cal-EPA

From: Muriel Strand

Re: Updated Macroeconomic Analysis of Climate Strategies Presented in the March 2006 Climate Action Team Report

While I am certain that the analyses of the three economists who spoke about their models at the workshop on 9/14/07 are thorough and at least somewhat calibrated, my skepticism about some key assumptions underlying conventional econometric analysis practice leads me to highlight several methodological issues.

### Monetary Measures

Use of money as a metric presumes that economic actors possess perfect information and accurately evaluate the utility for them of various goods and services as well as their overall “market basket.” But we all know that sellers regularly engage in disinformation and propaganda. Moreover, absurdly low energy prices relative to U.S. wages have allowed people to indulge in a variety of economic self-delusions that are very often totally unconscious. Yet economic realities such as climate change and oil depletion are estimated to be challenging for the economy more because they promise pain for those in denial than because they are necessarily a threat to survival, health, and even comfort.

Growth measures seem to be simply an index of transaction volume. So growth needn’t have any direct relationship to actual welfare unless consumers are accurately informed, an unlikely scenario as evidenced by customs like lawns and commuting.

### Cost-Benefit Analysis

Cost-benefit analysis should be reframed more along the lines of efficiency as it is defined in physics, which is the amount of output you can get per unit input. Economic input is the resources, including energy, which we as a species appropriate from the Mother Earth. Output is how much of our needs for clean air and water, healthy food, and snug shelter are met. Intermediate measures of economic benefit such as transportation or growth are inappropriate, in large part because they are means rather than ends, where means is the way resources are applied to meeting our needs, and ends are the actual fulfillment of these needs.

While the input and output of economics may not be in the same units as is the case in physics, mistaking an intermediate milestone for our goal is a much bigger threat to good analysis.

### Appropriate Technology

My comments to the ARB Economic and Technology Advancement Advisory Committee for their 9/6/07 meeting speaks in somewhat more detail to the types of technology best suited to achieve the kind of goal-oriented cost-benefit analysis described above, I am including those comments by reference, and attaching them as well.

Reforestation is an appropriate technology that likely offers more potential than may be apparent. According to Joel Norris of Scripps Oceanography Institute in San Diego, cloud behavior is perhaps the most uncertain aspect of climate change. In his book, “Triumph of the

Tree,” John Steward Collis explains how trees bring clouds and rain. Trees also grow many kinds of food. We need an economic model that can tell us how economical it would be to demolish all our freeways and plant trees in their stead.

I can of course discuss any of this in more detail if it would be helpful to staff or policy-makers.

9/4/07

To: ARB Economic and Technology Advancement Advisory Committee  
From: Muriel Strand  
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Re: Comments for September 6 Meeting

Although I cannot attend the September 6th meeting in person or online, I believe my comments will be sufficiently pertinent as I have been following energy and economic issues for some time.

As an opening summary, I am inserting the text of a recent letter to the editor of the Sacramento News & Review:

Last week's article "Wooden Nichols" totally misses the real enemy in the fight against global warming. As Pogo pointed out, he is us.

Why flog Nichols for supporting emissions trading when her bosses—both politicians and voters—really just want to continue comfy business as usual?

If we the public really want to do something about greenhouse gas emissions, we should just stop emitting them.

Hyperventilating by vested interests such as corporations and commuters about how this will sink our precious economy is just lack of imagination and fear of change.

Don't be fooled by PR horror stories trying to con you that we need money—or our current conventional economy—to survive and thrive sustainably. Keep your eyes on the prize—clean air, clean water, healthy food, snug shelter, and friendly families and communities.

If we can have all these things just by living like the Amish, what are we waiting for? Washington? Arnold? Please.

(Plus we wouldn't have to keep acting like terrorists to protect our oil addiction.)

Standard economics contains some theoretical errors that are misleading, especially when one wishes to analyze fundamental issues and new situations. Econometrics are based on straightforward extrapolations of the past, but in the effort to significantly reduce greenhouse gas emissions we are trying to address a radically different and sustainable future. Econometrics are also generally framed in monetary terms, but money is a secondary variable in economics. We must pay close attention to real phenomena, such as air, water, food, and shelter.

For example, the standard definition of economic efficiency is misleading. Instead, we need a new definition that is analogous to the definition found in physics, of output relative to input. Here, the output of interest is air, water, food, shelter, and other basic physical necessities, and

the input is greenhouse gas emissions or total energy used. Although some believe this is equivalent to the current standard definition of the completion of all possible transactions that increase anyone's utility, I don't believe this.

Please note that motor vehicles are not included in this efficiency equation. They are just a means to an end. We do not need to drive, we are simply very accustomed to it. People have survived very comfortably without driving, and they can do so again. Similar observations can be made about other now-common technologies.

The danger in shortsightedly spending lots of energy, time, and resources on baby steps is that we will end up wasting lots of time, energy, and resources on moving the deck chairs on the Titanic rather than on simple lifeboat technologies that are truly sustainable. Many people don't realize how very far we are from sustainability, and so this preoccupation with baby steps is understandable but dangerous. My rule of thumb for sustainability is an energy price that is competitive with humanpower, which is about \$500 per gallon of gasoline, in terms of the U.S. price level.

Thus, greenhouse gas emission reduction strategies based on fundamental changes in how we obtain water and food are essential. And people are already moving in this direction, as the increasing popularity of farmers markets and natural foods indicates. ARB and other agencies should be supporting and strengthening such sentiments.

Moreover, there are many benefits to reduced use of engines that should be factored in to the real economic cost-benefit analysis. Constraints which require us to actually use our muscles (to walk and ride bicycles or horses) much more than we now do will lead to better health and lower health care costs. Constraints on distribution of food and water will lead to fresher and more nutritious diets. More time spent gardening and less time spent shuffling papers will reduce depression.

I could come up with more examples, but I think you are smart enough to think of some. So I will close with another quote, this time from Masanobu Fukuoka's permaculture classic, *One-Straw Revolution*:

People find something out, learn how it works, and put nature to use, thinking this will be for the good of humankind. The result of all this, up to now, is that the planet has become polluted, people have become confused, and we have invited in the chaos of modern times.

At this farm we practice "do-nothing" farming and eat wholesome and delicious grains, vegetables, and citrus. There is meaning and basic satisfaction in living close to the source of things. Life is song and poetry.

The farmer became too busy when people began to investigate the world and decided that it would be "good" if we did this or did that. All my research has been in the direction of not doing this or that. These thirty years have taught me that

farmers would have been better off doing almost nothing at all.

The more people do, the more society develops, the more problems arise. The increasing desolation of nature, the exhaustion of resources, the uneasiness and disintegration of the human spirit, all have been brought about by humanity's trying to accomplish something. Originally there was no reason to progress, and nothing that had to be done. **We have come to the point at which there is no other way than to bring about a "movement" not to bring anything about.** (p.158-9)

As he points out elsewhere in his book, such do-nothing farmers are far from idle. But they are working with nature, and with human nature as it has evolved and arisen from nature, and not against our nature nor against Mother Nature.

Please follow his example.